

KONYUKH, I.V.; VINOGRADOV, G.V.; KONSTANTINOV, A.A.

Rheology of polymers; microviscosimeter for polymer melts. Plast.  
massy no.10:45-49 '63. (MIRA 16:10)

VINOGRADOV, G. V.; KOREPOVA, I. V.; PODOLSKIY, Yu. Ya.; PAVLOVSKAYA, N. T.

"Effect of oxidation on boundary friction of steel in hydrocarbon medial and critical friction duties under which cold and hot seizure (or welding) develop."

report presented at the Intl Lubrication Conf, Washington, D.C., 13-16 Oct 64.

Inst of Petrochemical Synthesis, AS USSR, Moscow.

VINOGRADOV, G.V.

Symposium on Lubricants and Lubrication Techniques. Vest. AN  
SSSR 34 no. 1:87-88 Ja '64. (MIRA 17:5)

WINOGRADOV, G. V.; NAMETKIN, N. S.; NOSOV, M. I.

"Antiwear and antifriction properties of polyorganosiloxanes and their mixtures with hydrocarbons."

report presented at the Intl Lubrication Conf, Washington, D.C., 13-16 Oct 64.

Inst of Petrochemical Synthesis, AS USSR, Moscow.

VINOGRADOV, G.V. (Moskva); MUSTAFAYEV, V.A. (Moskva); PODOL'SKIY, Yu.Ya.  
(Moskva)

Wear and friction of steel in the presence of polymer powders.  
Izv.AN SSSR. Mekh.i mashinostr. no.1:202-205 Ja-F '64.  
(MIRA 17:4)

ACCESSION NR. AP4032519

S/0204/64/004/002/0345/0350

AUTHOR: Vinogradov, G. V.; Nametkin, N. S.; Mosov, M. I.

TITLE: Effect of the nature of polysiloxanes on their function as additives to hydrocarbon lubricants

SOURCE: Neftekhimiya, v. 4, no. 2, 1964, 345-350

TOPIC TAGS: lubrication, synergism, polysiloxane lubricant additive, hydrocarbon lubricant, antiwear lubricant, antifriction lubricant, silicon lubricant, antiwear, antifriction, polysiloxanes, hydrocarbon

ABSTRACT: This is the third article in a series on synergism in polysiloxane-hydrocarbon lubricant mixtures. Previous studies showed that the antiwear and antifriction properties of polysiloxane-hydrocarbon lubricants depend on the nature of the hydrocarbon. In the present article, experimental data are presented on the effect of the nature of polysiloxanes on the synergism in polysiloxane-hydrocarbon lubricants. Tests were made of the antiwear and antifriction properties of mixtures of 1,1-di-xylylethane with

Card 1/3

ACCESSION NR. AP4032519

polymethylsiloxane (I), polyethylsiloxane (II), and polymethylphenylsiloxane liquids with an average content of phenyl groups, called polymer 1 (III), and with a high content of phenyl groups, called polymer 2 (IV). The results (expressed in graphs and diagrams) showed that the synergetic action of polysiloxanes in the lubricating mixtures is greatly dependent on the nature of the polysiloxane. Effectiveness of the latter as hydrocarbon lubricating oil additives decreased in the order II>I>III>IV. This decrease is attributed to the increasing thermo-oxidative stability in the polysiloxane series on substitution of the side ethyl groups in the polysiloxane chain for methyl and phenyl groups. The synergism was observed not only in the mutually soluble mixtures of polysiloxanes and hydrocarbons, but also in polysiloxane-hydrocarbon emulsions. Orig. art. has: 1 table and 4 figures.

ASSOCIATION: Institut neftekhimicheskogo sinteza AN SSSR im. A. V. Topchiyeva (Institut of Petrochemical Synthesis, AN SSSR)

Card 2/3

ACCESSION NR. AP4032519

SUBMITTED: 27Jun63

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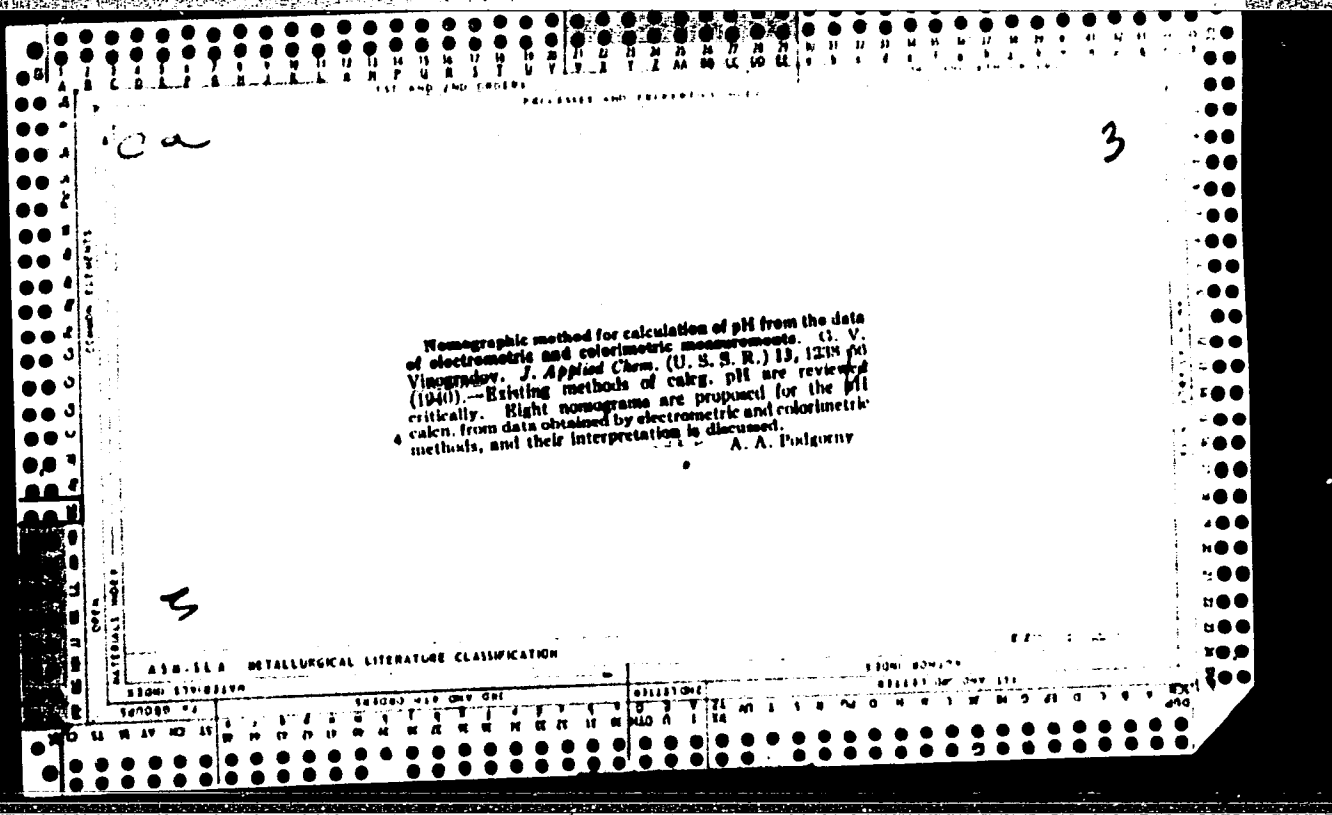
Card 3/3



VINOGRADOV, G.V.; BELKIN, I.M.; KONSTANTINOV, A.A.; KRASHENINNIKOV, S.K.;  
ROGOV, B.A.; MALKIN, A.Ya.; KONYUKH, I.V.

Rotating elasto-viscosimeters for the testing of polymeric  
systems. Zav.lab. 30 no.3:364-367 '64. (MIRA 17:4)

1. Institut neftekhimicheskogo sinteza AN SSSR.



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1ST AND 2ND ORDERS  
PROCESSES AND PROPERTIES INDEX

COMMON ELEMENTS  
COMMON VARIABLE WORDS

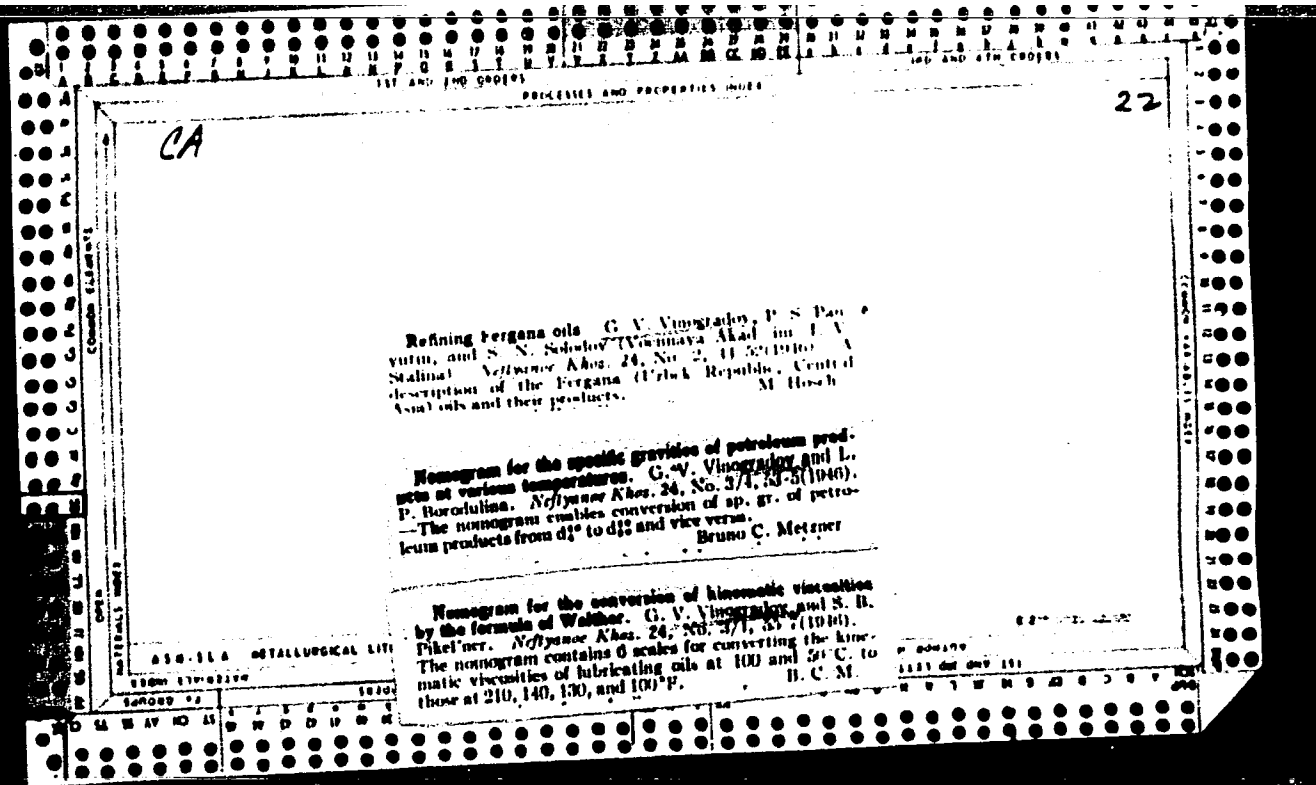
COMPUTATIONS ON THE BASIS OF FREUNDLICH'S EMPIRICAL EQUATION. (In Russian.) G. V. Vinogradov and L. P. Borodulina. *Journal of Applied Chemistry* (U.S.S.R.), v. 19, no. 7, 1946, p. 673-677.

NOMOGRAMS ARE PRESENTED TO ELIMINATE THE NEED FOR COMPLICATED CALCULATIONS IN THE APPLICATION OF FREUNDLICH'S EQUATION TO THE DETERMINATION OF ADSORPTION ISOTHERMS.

ASB-51A METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS  
PROCESSES AND PROPERTIES INDEX

COMMON ELEMENTS  
COMMON VARIABLE WORDS



PROCESS AND PROPERTIES INDEX									
<p><b>4082. CALCULATION OF VISCOSITY INDICES OF LUBRICATING OILS.</b> Vinogradov, V. and Pikel'ner, S. B. (Nefteyance Khos., 1946, 24, No.5, 51-5; 'hem. Abstr., 1947, 41, 590).</p> <p>A nomogram is described and illustrated which enable finding the viscosity index values from the viscosity values of the oils at any 2 temperatures in °C. The conventional A.S.T.M. chart, based on viscosities at 210° and 100°F., is useless for the Russians.</p>									
<p>ASME-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>									
<p>FROM SOURCE</p>									

F

2902. QUALITATIVE TESTS FOR HYPOID TYPE ADDITIVES IN OILS.  
Vinogradov, G. V. and Toropov, A. P. (Nefteyanoe Khoz., 1946, 24,  
No. 6-7, 46-7; Chem. Abstr., 1947, 41, 2881).

A quick test for indicating the presence of extreme-pressure additions in compounded oils comprises diluting the oil sample with 20-100 vols. of unleaded gasoline, pouring some of the solution into a test tube which contains 0.5-1 ml. of Hg (filter the Hg through paper having a pinhole) and shaking. In the presence of a S-bearing addition agent the Hg will form an emulsion which persists for a few minutes and gives a dark coloration. The test was tried on a variety of oils and found to be specific. Motoro oils, Paraflo, and a series of other lubricants do not form an emulsion, but G-3587 oil, "concentrate," Paranox, and sulphurized Nigrol do. Oils containing oleic acid form a dispersion of the Hg. rather than an emulsion. The test is very sensitive; it works with G-3587 oil although the gasoline solution of the latter contains a mere fraction of 1% Santopoid. Halogen-bearing addition agents, e.g. those present in GO-90 oil, do not react with Hg. They can be detected by the Beilstein test (green colour of Munsen burner flame on introducing a drop of oil on copper wire.)

VINOGRADOV, G. V.

PA 4TH

USSR/Oils

Jan 1947

Mathematics

Viscosity

"Calculation of Viscosities and Viscosity Temperatures of Oils," G. V. Vinogradov, 6 pp

"Neftyanoye Khozyaystvo" Vol XXV, No 1

Mathematical discussion with two full-page statistical charts.

4TH

22

CA

Mechanical properties of greases. G. Vinogradov, V. P. Pavlov, and K. I. Klimov. *Nefteprom Khim.* 25, No. 12, 47-51 (1947); 26, No. 1, 52-61 (1948).—Curves illustrating the kinetics of elastic deformation in greases in conditions of simple shear indicate the existence of reversible creep, including elastic pre-effect and elastic after-effect. The effects are greatly accelerated after preliminary stirring or heating of the grease. During the flow of grease under pressure through capillaries, max. values of ultimate shear stress  $\tau_{max}$  are observed when the pressure acts in a direction opposite to that in which the capillary was previously packed with grease. Min. values are obtained when the two directions are the same. Both the max. and min. values of  $\tau_{max}$  decrease linearly with increase in temp. within the range used in the tests (10-60°) and more rapidly at reduced rates of flow. A 4:1 mixt. of grease and oil shows a substantial reduction in the area of the thixotropy hysteresis loop when tested in the rotary viscometer immediately after mixing, but the area is larger again after the grease has been allowed to rest for several days. A pressure viscometer of the const.-rest type will give reproducible values of the flow properties of grease if the pressure is measured at the grease inlet to the capillary, rather than in the supply line for the hydraulic fluid. The former is const., while the latter decreases toward the grease inlet. 65 references.

Bruno C. Metzner



1ST AND 2ND CODES																										PROCESSES AND PROPERTIES INDEX																										3RD AND 4TH CODES																									
<p><b>118. CALCULATION OF VISCOSITIES AND VISCOSITY TEMPERATURE CURVES OF OILS.</b> Vinogradov, G. V. (Neftyanoe Khoz., 1947, 25, (1), 51-6; Chem. Abstr., 1947, 41, 6098). A formula for the viscosity of liquid mixts., derived by G. M. Panchenkov, is examd. from the viewpoint of its application to petroleum products. With certain simplifications it assumes the form <math>\eta = A \sqrt{\frac{r h e}{RT}}</math> where <math>\eta</math> is the viscosity coeff., <math>A</math> a const. for a given mixt., <math>T</math> the abs. temp., <math>e</math> the bond energy between the mols. and <math>R</math> the gas const. Two nomographs expressing this equation are given, in which <math>E</math> varies from 5000 to 15,500 for oils, <math>T</math> from -50° to 200°, and <math>\rho</math> from 0.7 to 2. A discussion of the nomographs indicates that the slope of the viscosity curve depends in the first place on the viscosity of the oil at the given temp. To compare two oils within a given temp. range, their viscosity curves must be compared both as to slope and viscosity-tem. coeff. or as to viscosity index and the values of viscosity.</p> <p style="text-align: right;">C. A.</p>																																																																													
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<p>STONY STRIP</p>																																																																													

CA

22

Elastic-plastic properties of calcium greases. G. V. Vinogradov and K. I. Klimov, *Doklady Akad. Nauk S.S.S.R.* 37, 911-14(1947); cf. *C.A.* 40, 719. — The mech. properties of Ca greases (mineral oil of high viscosity with 14.2% Ca soap from linseed oil and contg. 2% moisture) were detd. by the concentric-cylinder method. At loading of 1.15 g./sq. cm. plastic flow of the grease almost ceases, and the motion of the cylinder is reversed by the elastic reaction. The results are shown graphically. The residual deformation is destroyed in time exponentially.  
G. M. Kuznetsov

VINOGRADOV, G. V.

PA 52T13

USSR/Chemistry - Soaps

Chemistry - Alkali-Earths

Oct 1947

"Phase Crossings in Alkali-Earth Soaps," G. V. Vinogradov, Inst Genl and Inorg Chem imeni N. S. Kurnakov, Acad Sci USSR; Mil Acad Armored Tank and Mechanized Forces imeni I. V. Stalin, 3 pp

"Dok Akad Nauk SSSR" Vol LVIII, No 1

Alkali-earth soaps of high aliphatic acids are important as agents to thicken mineral oils in the production of grease. Study of phase crossings in alkali-earth soaps was made with stearate calcium ( $\text{CaSt}_2$ ) and barium ( $\text{BaSt}_2$ ), and  $\text{SrSt}_2$ . Submitted by Academician I. I. Chernyayev, 14 Mar 1947.

52T13

CA

The dependence of the rate of deformation of calcium greases on the shearing stress. G. V. Vinogradov and V. P. Pavlov. *Doklady Akad. Nauk S.S.S.R.* 58, 1381 (1947), cf. *U.S.* 43, 1656. In order to investigate the re-

lation between the rate of deformation  $D$  and the shearing stress,  $\tau$ , flow tests through narrow capillaries were made on Solidol. The temp. range was  $-45$  to  $+80^\circ$ . The results are reported in plots of  $\log D$  against  $f(\log \tau)$ . The influence of temp. was greatest at the middle temp. range. At high loads there was an appreciable development of heat within the capillaries, which caused the curve to become steeper. As a result, in the region of high rates of deformation the curves showed deviations from Eyring's equation  $\tau = K_1 + K_2 \log D + K_3 D$  ( $K_1$ ,  $K_2$ , and  $K_3$  are consts.).

These deviations are discussed in some detail. The shear modulus and flow limits of calcium greases. G. V. Vinogradov and K. I. Klimov. *Ibid.* 1947, 801. The deformation of Ca greases (drop point  $70-80^\circ$ ) was measured at  $10^\circ$ . The relation between deformation and time could be represented by the equation  $\log \gamma = a + b \log (1 + t)$ . The value of  $b$  remains const. for a wide range of load, so that for the same time interval the deformation is proportional to the load. At small loads the grease behaved as a solid. As the load was increased a sharp deformation suddenly appeared which was no longer reversible. This was associated with the beginning of flow, which, however, at this point was very slow. Further expts. on Solidol with a cylinder rotating in the lubricant at a const. rate gave curves of the form  $\gamma = f(t)$ , in which  $\tau$  is the load. In this case the load decreased to a limiting value with prolonged deformation. The values of  $\tau$  sank so sharply with long-continued deformation that only after a long resting period could the deformation that only after a long resting period could the original values be reproduced. This indicates a change of structure during the deformation. Since a viscous flow occurs during deformation, the viscosity could be calculated for low rates of deformation. This value is independent of the shearing load, which is in agreement with the results obtained by Vinogradov and Pavlov (cf. above) for high rates of deformation. Through *Chem. Zentr.* 1948, 11, 3214.

M. G. Moore

1751

VINGEROV, G. V. AND PAVLOV, V. P.

USSR

"Dependence of the Velocity of Deformation of Calcium Lubricants on the Magnitude of the Shear," Dok. AN, 58, No. 7, 1947

VINOGRADOV, G. V.

FA 51789

**USSR/Petroleum Industry**  
**Lubricants - Properties**

**Jan 1948**

**"Mechanical Properties of Lubricants," G. V. Vinogradov, V. P. Pavlov, K. I. Klimov, 6½ pp**

**"Neft Khozyay" No 1**

Discusses limited shear stresses in lubricants, and the "tikсотropy" of lubricants, study of the changes occurring in the dispersed systems of lubricants when they are acted on by constant shear stresses while they are flowing. Also discusses equipment and methods to determine the viscosity of lubricants. Authors grateful for aid given by Senior Technicians L. F. Kalmykov, Yu. A. Naumov, A. V. Yarmakov, and Laboratory Technician A. D. Gerasimov.  
LC 51789

22

CA

**Rheological properties of calcium greases.** G. V. Vinogradov and K. I. Klimov. *Zhur. Tekh. Fiz.* 18, 355-70 (1948); cf. C.A. 43, 4039b. The kinetics of the elastic deformations of a solidol prep. with a petroleum distillate and 14.2% Ca soap from cottonseed oil (2% H<sub>2</sub>O, 0.6% free acid) were followed with a torsional elastometer by photographic recording. (1) With increasing shearing stresses  $\tau$  (1.15, 2.30, 3.45, 4.60 g./sq. cm.) alternately applied and removed, the elastic strains  $\gamma$  are proportional to  $\tau$ , i.e. Hooke's law is valid, with a modulus of shear  $g = 8.4 \times 10^{-5}$  kg./sq. mm. at 10°. The time curves of direct and of reverse after action are sym.; the former can be represented by  $\log \gamma = a + b \log(1 + t)$ , where  $t$  = time. The after-action increases with  $\tau$ , but remains weak below the yield point  $\tau_1$ . The shape of the strain-time curves (at const.  $\tau$ ) changes markedly if, instead of the fused grease being poured into the app., and allowed to solidify, it is stirred in; in the latter case, direct and reverse afteraction become much more pronounced. After 24 hrs. standing, there is a thixotropic recovery of structure. The same phenomena were observed with the standard ASTM stirring procedure. When  $\tau$  is abruptly raised above  $\tau_1$ , and the load removed,  $\gamma$  sears to a peak and then decreases slowly with time; presence of a residual irreversible deformation is demonstrated by accelerating the decay of reversible elastic afteraction through a temp. rise by 15°. The irreversible residual deformation does not arise abruptly, but develops gradually with increasing  $\tau$ ; the limiting  $\tau_1$  is a singular point on the  $\gamma = f(\tau)$  curve, and characterizes the range where viscous flow becomes superposed on elastic strain. Systematic increase of  $g$  under the action of successive deformations at  $\tau < \tau_1$  is demonstrated by analysis of photograms of alternate applications and removals of a const.  $\tau$ ; the same systematic increase of  $g$  is inferred also from photograms of  $\gamma$  under  $\tau$  of alternately opposed signs, and from hysteresis figures. Alternating

heating and cooling between 10 and 20° also result in an increase of  $g$ , i.e. increased strength. In analogy with the rate law of the direct afteraction (see above), the change with time of the difference  $\gamma' = \gamma_{\max} - \gamma$ , where  $\gamma_{\max}$  is the max. strain attained at the moment of the removal of the load, obeys the law  $\log \gamma' = c + d \log t$ , where  $c$  and  $d$  are const.; the deformation along the curves of reverse afteraction decreases according to  $\gamma = e - f \log t$ , where  $e$  and  $f$  are const. These relations are confirmed by the corresponding exptl. plots. (2) The dependence  $\gamma = f(\tau)$  was investigated, at 20°, on stirred solidol, with the load varied at a uniform rate;  $\tau$  as a function of  $\gamma$  reaches rapidly a max. After removal of level, independent of the rate of torsion. After removal of the max. load, and 45 hrs. rest, the max.  $\tau$  is found even considerably lowered, and the same low level of  $\tau$  is found even after 2 weeks' rest; this demonstrates the irreversible structure change of the solidol due to the flow. The behavior of the grease can be qualitatively represented by a model consisting of 4 elements in series, (a) a spring representing the solid-body Hooke-Law elasticity, (b) a spring in parallel with a piston moving in a viscous liquid, (c) a slide-block with a static friction coeff., representing  $\tau_1$ , and (d) a piston in a viscous liquid, set in motion by that of c. (3) Reproducible ( $\pm 3.6\%$ ) and time-invariable values of  $\tau_1$  are obtained by the method of extrusion through metal capillaries with a triangular-section screw thread cut along its inner wall; examples of suitable dimensions are, inner diam. 7 or 3.5, length 30 or 60 mm. Values of  $\tau_1$  obtained by this method agree with those from  $\gamma(\tau)$  curves in the torsional elastometer. With increasing temp. (10-60°)  $\tau_1$  decreases linearly. With increasing  $\tau$ , i.e. in the course of flow,  $\tau_1$  decreases. Tech. petrolatum shows the same behavior, but with fibrous Na constalin  $\tau_1$  as a function of  $\gamma$  passes through a max. Further, unlike the solidols, the fall of  $\tau_1$  with increasing temp. for constalin and a mixed Ca-Na-soap grease is not linear. N. Thon

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PROCESSING AND PROPERTIES INDEX																			
<div style="float: left; width: 50px; text-align: center;">B</div> <div style="float: right; width: 50px; text-align: center;">26</div> <div style="clear: both;"></div> <p><b>Nomograms for the Langmuir Equation. (In Russian.)</b>  G. V. Vinogradov and L. P. Borodulina. <i>Zhurnal Prikladnoi Khimii</i> (Journal of Applied Chemistry), v. 21, Mar. 1948, p. 249-250.</p> <p>Folded chart consists of elliptical shaped nomograms for quick determination of desired values for the Langmuir adsorption isotherm for gases on solids. Includes description of method of use.</p>																			
SSR-51A METALLURGICAL LITERATURE CLASSIFICATION										E-277-174-10000									
EIGHT STAGES										EIGHT STAGES									
STAGE 1										STAGE 2									
STAGE 3										STAGE 4									
STAGE 5										STAGE 6									
STAGE 7										STAGE 8									



VINOGRADOV, G. V.

PA 64T5

USSR/Chemistry - Adsorption  
Chemistry - Isotherms

Feb 1948

"The Conversion of Adsorption Isotherms," G. V.  
Vinogradov, 4 pp

"Zhur Prik Khim" Vol XXI, No 2

Describes calculations necessary to compute character-  
istic curves for two different materials in graph  
form. Submitted 27 Oct 1946.

64T5

VINOGRADOV, G. V.

PA 65T89

USSR/Petroleum Industry  
Oils, Synthetic

May 1948

"Synthetic Oils and Lubricants (Survey)," G. V.  
Vinogradov, 6 pp

"Neft Khoz" Vol XXVI, No 5

Important guide in development of technology and application of synthetic oils is production of oils satisfying specific, often rigid specifications for which petroleum oils and synthetic hydrocarbon compounds are not suited. These include fluorine-carbon oils, silicon oils, dual esters, etc.

LC

65T89

PA 35/49T7

USSR/Chemistry - Grease, Calcium Base Aug 48  
Chemistry - Viscosity

"Viscosity of Calcium-Base Greases," G. V.  
Vinogradov, V. P. Pavlov, 4 pp

"Dok Ak Nauk SSSR" Vol LII, No 6

Thickening effect of soap was found to increase rapidly with rise in temperature. Highest thickening effect and lowest temperature coefficient of viscosity are achieved for calcium-base greases when low-viscosity oil is used. Effect of same amount of soap can be 20 - 40 times higher with kerosene than with viscous distillates at low temperatures. Apparent difference between these conclusions and

35/49T7

USSR/Chemistry - Grease, Calcium Aug 48  
Base (Contd)

Arveson's is explained by different method used.  
Submitted by Acad S. S. Nemetkin, 12 Jun 48.

VINOGRADOV, G. V.

35/49T7

CA

12

**Temperature characteristics of elastoplastic properties of greases.** G. V. Vlasov and K. I. Klimov. *Doklady Akad. Nauk S.S.S.R.* 71, 307-10(1950); cf. preceding abstr.

Samples of different types of greases, including Ca stearate-kerosine solidols with 16% soap and 1.7 and 0.2%  $H_2O$ , a 10% Li stearate petroleum grease, and a short-fiber castor oil constalin, obey Hooke's law at sufficiently low shearing stresses  $\tau$ ; the range of strain  $\gamma$  up to which that law holds increases with the temp. In the ideal range, the modulus of shear  $g$  of a variety of greases lies within the limits  $1 \times 10^9 - 3 \times 10^9$  g./sq. cm. The temp. coeff. of  $g$  and of the yield point  $\tau_1$  (around  $30^\circ$ ) is of the same order, mostly between 0.01 and 0.04/degree. The strain  $\gamma_1$  corresponding to  $\tau_1$  is of the same order for short-fiber Na and Na-Ca greases as for smooth Ca and Li greases. When a grease is strained up to  $\gamma_1$ , it shows on repeated loading a  $\tau_1$  lower than the original  $\tau_1$ ; the difference  $\tau_1 - \tau_1'$  is nearly independent of the temp. in a fairly broad temp. range. The sharpness of  $\tau_1$  increases with the temp., and  $\tau_1'$  is sharper than  $\tau_1$ . The change of  $\tau_1$  as a result of weakening by straining is paralleled by a similar change of  $g$ . This indicates that the same structure elements are responsible for the elastic properties and for the strength. These common structure elements are the soap fibers and their cross-links.

N. Thon

535.55: 532.13: 539.501

5752. Optical methods for the study of structural changes in lubricants. G. V. VPODOBNOV, Dokl. Akad. Nauk, SSSR, 71 (No. 1) 205-4 (1950) in Russian.

Photographic processes for the study of the microstructure of colloidal viscosity and the disintegrating effects upon it of different tensions are described. Photographs are reproduced showing, e.g., the laminar flow of a Na lubricant round a circular obstacle placed in a plane capillary; the movement, photographed in polarized light, of lubricants at low pressures of displacement, proceeding in the form of a continuous columnar agglomeration of units of different sizes; the flow of homogenized lubricants photographed in both circularly and plane-polarized light. It is claimed that the methods of photo-elasticity and photo-viscosity described, resulting in "stills" of rheological dispersal systems, enable (1) macro-rheological processes to be controlled, (2) cases not hitherto accessible to calculation and rheological assessment to be reduced to a simplified form, (3) the kinetics and dynamics of structural change to be clearly related to systematic structures.

2. CLUBSOM

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

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1ST AND 2ND ORDERS										3RD AND 4TH ORDERS									
COMMON ELEMENTS																			
COMMON VARIABLE INDEX																			
<div style="float: right; font-size: 2em; font-weight: bold;">23</div> <div style="clear: both;"></div> <div style="border: 1px solid black; padding: 10px; margin: 10px;"> <p><b>Viscosity and Shear Resistance of Lubricants.</b> (In Russian.) G. V. Vinogradov and K. I. Klimov. <i>Doklady Akademii Nauk SSSR</i> (Reports of the Academy of Sciences of the USSR), new ser., v. 71, Apr. 1, 1950, p. 697-700.</p> <p>Elastic-plastic properties of a series of lubricants were investigated by a specially developed method of concentric torsion of annular test specimens. Theoretical bases of the method are indicated. Data are charted and interpreted. Results are discussed.</p> </div>																			
<b>ASH-SLA METALLURGICAL LITERATURE CLASSIFICATION</b>										<b>EXTRACTED RESULTS</b>									
<b>1ST AND 2ND ORDERS</b>										<b>3RD AND 4TH ORDERS</b>									
<b>GROUPS</b>										<b>EXTRACTED RESULTS</b>									
<b>GROUPS</b>										<b>EXTRACTED RESULTS</b>									

**F** **J**

1733. VISCIOUS PROPERTIES OF GREASES MADE CONSISTENT WITH METAL STEARATES. Vinogradov, G. V. and Pavlov, V. P. (Doklady Akad. Nauk S.S.S.R. (Rep. Acad. Sci. U.S.S.R.), 1950, vol. 71, 1069-1072; abstr. in Chem. Abstr., 1950, vol. 44, 10309).

Curves of  $\log \gamma$ , the shearing stress at the wall of the capillary, as a function of  $\log \dot{D}$ , the mean rate of shear, and of  $\log \gamma/\eta_0 \dot{D}$  against  $\log \dot{D}$  (where  $\eta_0$  = viscosity of the medium), were determined at different temperatures for a series of greases made up from various petroleum oils and stearates of Li, Na, K, and Ca. Deviation from different capillaries are greatest at low  $\dot{D}$  ( $< 10 \text{ sec.}^{-1}$ ), but are only a few % at  $\dot{D} > 100 \text{ sec.}^{-1}$ ;  $\gamma$  decreases with time, apparently because of synerosis. The effect of temperature is particularly marked with anhydrous calcium greases, probably in connection with phase transitions in the disperse phase. The liquefaction of elastoviscous calcium stearate gels observed by Gallay and Fuddington is due not to hardening but to deformation hardening. The viscous

ASS-51A METALLURGICAL LITERATURE CLASSIFICATION

FROM SYNONYM

FROM SYNONYM

SYNONYM #1

SYNONYM #2

SYNONYM #3

SYNONYM #4

behaviour of the stearate greases is analogous to that of the solidols; curves of the effective relative viscosity as a function of  $\dot{\gamma}$ , at different temperatures, are nearly parallel, as in the case of Arveson's solidols. The consistence-increasing effect of Li, Na, and K stearates increased with temperature. The previously described behaviour of solidols is common to all types of smooth greases with a submicrofibrous structure. (L).



VINOGRADOV, G. V.

"Investigation in the Field of the Rheology of Consistent Lubricants." Sub 1 Feb 51, Inst of Petroleum, Acad Sci USSR.

Dissertations presented for science and engineering degrees in Moscow during 1951.

(Dr. Chemical Sci.)

SO: Sum. No. 480, 9 May 55

VINOGRADOV, G.V.

Soaps, solutions and gels of soaps. Uspekhi Khim. 20, 533-59 '51.  
(CA 48 no.1:389 '54) (MLRA 4:8)

TYABIN, N.V.; SHKLYAR, L.A.; MOSIKHIN, Ye.P.; VINOGRADOV, G.V.

Rheologic investigation of grease by the centrifuge method.  
Trudy ~~AKHTI~~ no.16:133-150 '51 [Publ. '52]. (MIRA 12:12)  
(Lubrication and lubricants)

VINOGRADOV, G. V.

Lubrication and Lubricants.

Compound Lubricants as dispersed systems. Usp. khim., 21, no. 6, 1952.

9. Monthly List of Russian Accessions, Library of Congress, November 195~~2~~<sup>1</sup> Uncl.

VINOGRADOV, G.V.

USSR/Chemistry - Lubricants

1 May 52

Viscosity-Temperature Properties of Lubricating Greases," G. V. Vinogradov, V. V. Sinitsyn, Petroleum Inst, Acad Sci USSR

"Dok Ak Nauk SSSR" Vol LXXXIV, No 1, pp 85-88

It was previously shown that despite the high viscosity of greases, the dependence of their viscosity on temp is not as well expressed as for the dispersion medium from which the grease was prepd. In the current work 10% of lithium stearate is added to 3 samples of oil and the viscosimetric properties are compared with those of fatty solidol. Presented by Acad A.V. Topchiyev 23 Jan 52.

224T7

VINOGRADOV, G. V.

23178

USSR/Chemistry - Lubricating Greases May 52

"The Rheological Properties of Bentonite Pseudogels," G. V. Vinogradov, V. P. Pavlov, K. I. Klimov, M. M. Gvozdev

"Dok Ak Nauk SSSR" Vol 84, No 2, pp 309-312

The properties of ag suspensions of alk bentonite (ascangel from Tsikhis Ulan, Georgian SSR) were compared with a std lubricating grease, fatty solidol (mineral oil thickened with a calcium soap), and an oil pseudogel of aminated bentonite. It was shown that it is

23178

possible to obtain thickening clays producing effects similar to those produced in greases by soaps. States that the results also refute the viewpoint found in the literature that pseudogels contg thickening soaps and those contg clays are different in nature. Presented by Acad A. Y. Topchiyev 8 Mar 52

23178

VINOGRADOV, G. V.

235T29

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USSR/Chemistry - Lubricants

11 Sep 52

"Elasticity and Mechanical Strength of Greases,"  
G. V. Vinogradov, M. M. Gvozdev

"Dok Ak Nauk SSSR" Vol 86, No 2, pp 341-344

Describes the behavior of greases thickened with lithinum stearate. Shows that the point of change from elastic deformation to viscous flow becomes sharper as the concn of the disperse phase increases and the viscosity of the dispersion medium decreases. Presented by Acad A. V. Topchiyev 5 Jul 52.

235T29

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VINOGRADOV, G. V.

USSR/Chemistry - Lubricants

21 Sep 52

"Viscosity Properties of Na-Greases and the Influence of the Wall-Adhesion Effect on Their Flow," G. V. Vinogradov and V. V. Sinitsyn, Inst Phys Chem im L. V. Pisarzhevskiy, Acad Sci Ukrainian SSR, Kiev Technol Inst of Light Industry

DAN SSSR, Vol 86, No 3, pp 573-576

The viscosity properties of constalin with the Na soap of castor oil added as thickening agent, and grease 1/13 thickened with a mixture of Na and Ca soaps of castor oil were studied with the aid of a

247T13

capillary viscosimeter. The effect of temp on the adhesion to the walls of the capillary tubes was also studied. Presented by Acad A. V. Topchiyev  
5 Jul 52

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247T13



VINOGRADOV, G. V.

USSR/Physics - Rheology

Oct 52

"Two-Measurement Method of Investigating the Viscous Properties of Plastic Bodies," A. A. Konstantinov and G. V. Vinogradov

DAN SSSR, Vol 86, No 4, pp 749-752

A method is proposed for measuring viscosity and the gradient of velocity simultaneously. Any method which permits finding the relationship between two varying quantities such as viscosity and temp etc as the result of a single measurement, has been named a two-measurement method by M. M. Kusakov. Hitherto, there has been no two-measurement method

264T99

for studying the rheological properties of plastic, disperse systems. The device proposed consists of a calibrated rod which is forced, with the aid of a calibrated spring, into a cylinder containing the material tested. A capillary provides passage for the displaced fluid. An indicator on the spring records the fluid movement on a rotating drum. The cylinder is surrounded by a constant-temp bath. Presented by Acad A. V. Topchiyev 10 Jul 52.

SOV/124-57-7-8019  
Translation from: Referativnyy zhurnal. Mekhanika, 1957, Nr 7, p 81 (USSR)  
AUTHOR: Sinitsyn, V. V., Konstantinov, A. A., Vinogradov, G. V.  
TITLE: The Viscosimetry of Disperse Systems at Variable Deformation Rates  
(Viskozimetriya dispersnykh sistem pri peremennykh skorostyakh  
deformatsii)  
PERIODICAL: V sb.: Tr. 3-y Vses. konferentsii po kolloid. khimii. 1953 g.  
Moscow, AN SSSR, 1956, pp 113-120  
ABSTRACT: Bibliographic entry

Card 1/1

SOV/124-57-7-8014

Translation from: Referativnyy zhurnal. Mekhanika, 1957, Nr 7, p 80 (USSR)

AUTHORS: Mosikhin, Ye. P., Vinogradov, G. V.

TITLE: On the Investigation of the Rheologic Properties of Lubricants Under Uniaxial Tension (Ob issledovanii reologicheskikh svoystv smazok v usloviyakh odnoosnogo rastyazheniya)

PERIODICAL: V sb.: Tr. 3-y Vses. konferentsii po kolloid. khimii, 1953 g. Moscow, AN SSSR, 1956, pp 121-126

ABSTRACT: Bibliographic entry

Card 1/1

VINOGRADOV, G.V., doktor tekhnicheskikh nauk, professor; GVOZDEV, M.M., kandidat tekhnicheskikh nauk.

Resilience and strength of consistent lubricants at the start of operation of roller bearings. Podshipnik no.5:6-9 My '53. (MLRA 6:5)  
(Lubrication and lubricants) (Roller bearings)

KLIMOV, G. V.

USSR/Chemistry - Lubricating  
Greases

Sep/Oct 53

"The Method of Concentric Shearing for the Investigation of Elasto-Plastic Properties and of the Mechanical Strength of Pastes and Pseudogels," K. I. Klimov, G. V. Vinogradov, Petroleum Inst, Acad Sci USSR, Moscow

Koll Zhur, Vol 15, No 5, pp 371-381

Describes the procedures applied and the equipment used in investigating the properties of lubricating greases. Gives data pertaining to "fat solidol" and "short-fibered constalin."

270717

TYABIN, N.V.; SIKLYAR, L.A.; POSIBIN, Ye.P.; VENOGRA DOV, G.V.

Flow of lubricating grease on rotating disks under the effect of centrifugal forces. Trudy KMTI no.12:123-141 '53 [publ. '54]. (NIRA 17:11)

(Lubrication and lubricants--Fluid dynamics)

TYABIN, N.V.; VINOGRADOV, G.V.

Immersion of a flat cone in lubricating grease. Trudy KGTI no. 12:  
222-229 '63 [publ. '54]. (MIR. 12:11)  
(Lubrication and lubricants--Testing)

KOSIKHIN, Ye.P.; SHALYAR, L.A.; TYABIN, M.V.; VINOGRADOV, G.V.

Testing lubricating process under conditions of uniaxial traction.  
Trudy KHNTI no.18:236-240 '53 [publ. '54]. (MIRA 12:11)  
(Lubrication and Lubricants—Testing)



Vinogradov, G. V.

1955

539.62

5054. Viscous properties of plastic lubricants and rotational resistance of anti-friction bearings. G. V. VINOGRADOV AND M. D. BEZBOROD'KO. *Dokl. Akad. Nauk SSSR*, 90, No. 6, 1019-22 (1953) In Russian. English translation, *U.S. National Sci. Found. NSF-tr-165*.

Shows, experimentally, that with viscous (grease) lubricants, the part of a bearing resistance which depends upon the lubricant and also varies with temperature and speed may be determined uniquely in terms of the viscosity-temperature and viscosity-speed characteristics of the lubricant. J. W. MENTER

VINOGRADOV, G. V.

The wall effect and viscosity-temperature properties of sodium greases. V. V. Smirnov and G. V. Vinogradov. *Doklady Akad. Nauk S.S.S.R.* 91, 323-324 (1953); cf. *C.A.* 88(10). - The majority of soap and hydrocarbon greases are distinguished by a macro or micro grainy structure. Viscometric investigation is possible if the dimensions of grain are considerably less than  $R$ , capillary radius. When  $L/2R = 60$  (where  $L$  is length of capillary and  $R$  a const. radius) the results are independent of  $L$ . In well-developed grainy greases the relatively large dimensions of grains and their higher stability impedes the development of laminar flow with increase in shearing stress at the capillary wall. "Slippage" of the disperse system takes place because the wall layers present relatively less resistance to formation than does the interior of the mass, where resistance to flow is tied up with stirring of grains and their disintegration. With decrease of size of grain (homogenization) the viscosity of grease decreases, and the role of intergranular material and dispersing phase increases. Correspondingly the wall effect is reduced and the curves of flow become invariant. Effect of wall slippage depends first of all on bulk properties and structure of the system.

V. N. Bednarski

10-13-57  
gyp

Vinogradov, G. V.

USSR

✓ Elastic strength properties and starting characteristics of plastic greases. G. V. Vinogradov and M. M. Gvozdev. *Doklady Akad. Nauk S.S.S.R.* 91, 1161-4 (1953); cf. C.A. 47, 2470c. —Starting characteristics of ball bearings lubricated with "Solidol" grease were investigated at controlled rates of increase of the angular momentum in a device similar to a torsion elastometer. Sepn. of the effects caused by the breakdown (I) of the matrix of the grease and by the viscous resistance was possible. I increased in relative importance with respect to starting resistance as the temp. was increased. The limiting starting momentum,  $M_{\infty}$ , corresponding to the resistance to the angular displacement over the initial 0.3° angle, determined by I, is expressed by  $M_{\infty} = A (Bd^3)^{0.5}$  where A is a function of the rate of increase of momentum  $v_{\infty}$  and of the limit of the elastic strength  $r$ ; B is the height of the bearing rings, and d the diam. of the shaft. Curves representing  $M_{\infty} = f(v_{\infty})$  had similar pos. slopes for all temp. between -20° and +40°, with the slope coeff. similar to that found previously for  $r = f(v_{\infty})$ . Log  $M_{\infty}$  varied linearly with the reciprocal of temp. Similar relations were found for roller bearings. A. D.

62 (1)

VINOGRADOV, G. V.

USSR/Chemical Technology - Chemical Products and Their Application. Treatment of Natural Gases and Petroleum. Motor Fuels. Lubricants, I-13

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 62634

Author: Tyabin, N. V., Vinogradov, G. V.

Institution: None

Title: Sinking of a Flat Wedge in Lubricant Grease

Original

Periodical: Tr. Kazan. khim.-tekhnol. in-ta, 1954, No 18, 222-229

Abstract: Results of investigations of kinematics and dynamics of sinking of a wedge in lubricant greases. Derived is the law of velocity distribution during sinking of the wedge and an equation that correlates kinematic and dynamic quantities on stationary sinking of immersed wedge into the lubricant.

Card 1/1

VINOGRADOV, G. V.

USSR/Chemical Technology. Chemical Products and Their I-14  
Application--Treatment of natural gases and  
petroleum. Motor fuels. Lubricants.

Abs Jour: Ref Zhur-Ikhimiya, No 3, 1957, 9361

Author : Mosikhin, Ye. P., Shklyar, L. A., Pyabin, N. V.,  
and Vinogradov, G. V.

Inst : Kazan Chemical Engineering Institute

Title : The Testing of Lubricating Greases Under Condi-  
tions of Uniaxial Tension

Orig Pub: Tr. Kazan. khim-tekhnol. in-ta, 1954, No 18,  
230-240

Abstract: The authors have introduced a new method for  
uniaxial (UA) testing of lubricating greases (LG)  
using a simple apparatus consisting of an ordinary  
beam balance; the test is carried out at a uniform  
rate of loading. A qualitative and quantitative  
investigation has been made of the deformation  
of LG specimens under the action of normal stresses

Card 1/2

USSR/Chemical Technology. Chemical Products and Their I-14  
Application--Treatment of natural gases and  
petroleum. Motor fuels. Lubricants.

Abs Jour: Ref Zhur-Khimiya, No 3, 1957, 9361

Abstract: and the modulus of elasticity of the LG in tension  
has been calculated. The behavior of the LG during  
repeated loading and unloading has been studied.  
the UA method makes it possible to determine the  
beginning of structural breakdown of the LG by  
the appearance of cracks and sliplines; this is  
an advantage of the method over the capillary and  
rotational test methods. The UA method is recom-  
mended for the determination of the strength  
properties of LG as well as for the investigation  
of other dispersed systems having a critical  
height of shape retention / TN: formosokhranyay-  
emost/ greater than 5-7 cm.

Card 2/2

VINOGRADOV, G.V.

MOSIKHIN, Ye.P.; VINOGRADOV, G.V.

Investigation of the rheological properties of lubricants in uniaxial expansion. Dokl.AN SSSR 96 no.3:499-502 My '54. (MLRA 7:6)

1. Institut nefti Akademii nauk SSSR. Predstavleno akademikom P.A.Rebin-derom. (lubrication and lubricants) (Rheology)

**"APPROVED FOR RELEASE: 09/01/2001**

**CIA-RDP86-00513R001859910015-2**

**APPROVED FOR RELEASE: 09/01/2001**

**CIA-RDP86-00513R001859910015-2"**



"APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R001859910015-2

APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R001859910015-2"

SINITSYN, V.V.; VINOGRADOV, G.V.

Viscous properties of hydrocarbon lubricants. Koll.shur. 17  
no.3:255-260 My-Je '55. (MIRA 8:8)

1. Institut nefti Akademii nauk SSSR, Moskva.  
(Lubrication and lubricants) (Viscosity)

VINOGRADOV, G.V.; KUSAKOV, M.M.; ZASLAVSKIY, Yu.S.; RAZUMOVSKAYA, E.A.

Investigation on the interaction of lubricants and metals. Vest.  
AN SSSR 25 no.9:35-40 S '55. (MIRA 8:12)  
(Lubrication and lubricants)

VINOGRADOV, G.V.

AID P - 1578

Subject : USSR/Chemistry

Card 1/2 Pub. 152 - 8/21

Authors : Vinogradov, G. V., Nechitaylo, N. A., Sinitsyn, V. V.,  
and Aleksashin, V. I.

Title : Study of the structure of plastic lubricants with an  
electron microscope

Periodical : Zhur. prikl. khim., 28, no.1, 52-64, 1955

Abstract : Commercial lubricants prepared from synthetic fatty acids  
studied with an electron microscope did not show a  
definite structure. It may be assumed that the dispersed  
phase of these lubricants consists of very small  
microcrystallites with an imperfect crystalline lattice.  
In Na-lubricants made from castor oil, and from cotton  
seed oil, ring-shaped soap particles were detected. In  
the dispersed phase of Na-Ca-lubricants, the coexistence  
of two solid phases, Na- and Ca-soaps, was detected.  
Al- and Li-lubricants were also studied. Seventeen

Zhur. prikl. khim., 28, no.1, 52-64, 1955

AID P - 1578

Card 2/2 Pub. 152 - 8/21

photos, 16 references (5 Russian: 1939-53)

Institution: None

Submitted : F 23, 1954

VINOGRADOV, G. V.

"Use and Mechanism of Action of Organophosphorus Compounds  
as Antiwear Additives in Oils"  
paper presented at Vn First Conference on Phosphorus Compounds, Kazan,  
8-10 Dec 56

SO: B-3,024,841

VINOGRADOV, G. V.; Tyabin, N. V.; Mosikhin, Ye. P.; Shklyar, L. A.

"Behavior of Structure Dispersed Systems in the Field of Movement of Centrifugal Forces" (Povedeniye struktirovannykh dispersnykh sistem v pole deystviya tsentrobezhnykh sil) from the book Trudy of the Third All-Union Conference on Colloid Chemistry, pp. 92-112, Iz. AN SSSR, Moscow, 1956

(Report given at above Conference, Minsk 21-24 Dec 53)

VINOGRADOV, G. V., KONSTANTINOV, A. A., and SMITSYN, V. V.

"Viscosimetry of Dispersed Systems at Variable Speeds of Deformation"  
(Viskozimetriya dispersnykh sistem pri peremennykh skorostyakh deformatsii)  
from the book Trudy of the Third All-Union Conference in Colloid Chemistry  
pp. 113-120, Iz. AN SSSR, Moscow, 1956

(Report given at above Conference, Minsk, 21-4 Dec 55)



VINOGRADOV, G. V., and MOSIKHIN, Ye. P.

"ON the Study of the Rheological Properties of Lubricants under  
Conditions of Single Shaft Strain' (Ob issledovanii reologicheskikh  
svoystv smazok v usloviyakh odnoosnogi restyazheniya) from the book:  
Trudy of the Third All-Union Conference on Colloid Chemistry, pp. 121-126,  
Iz. AN SSSR, Moscow, 1956

(report given at above Conference, Minsk, 21-4 Dec 53)

VINOGRADOV, G.V.; KUSAKOV, M.M.; BEZBORODKO, M.D.; PAVLOVSKAYA, N.T.;  
ZILENSKIY, V.D.; KREYN, S.B.; BOROVAYA, M.S.

Wear-preventive properties of petroleum oils. Khim.i tekhn.tepl.  
no.1:61-3 of cover Ja '56. (MLRA 9:7)  
(Petroleum)

VINogradov G.V.

1523. PROPERTIES OF PARAFFINOUS LITHIUM SALTS AT LOW TEMPERATURES  
Vinogradov, G.V. and Lebedev, V.G. (Khim. Tekhnol. Topliva (Chem. Technol.  
Fuel. Moscow), 1956, (3), 51-58; abstr. in Ref. Zh. Khim. (Ref. J. Chem.), 1957, 12, 2710. The authors investigated the properties of paraffinous lithium salts at low temperatures. The salts were examined in a  
state of solution in organic solvents.

"APPROVED FOR RELEASE: 09/01/2001

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YIN OGRA A G O V, U V.

APPROVED FOR RELEASE: 09/01/2001

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"APPROVED FOR RELEASE: 09/01/2001

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APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R001859910015-2"

"APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R001859910015-2

*Vincenzo 61*

APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R001859910015-2"

"APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R001859910015-2

*Vladimir G. V.*

APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R001859910015-2"

VINOGRADOV, G. V. (Inst. of Petroleum AS USSR, Moscow)

"Application and Mechanism of the Action of Organophosphorus Compounds as Anti-Friction Additives to Oil" (Primeneniye i mekhanizm deystviya fosfororganicheskikh soyedineniy kak protivvoiznosnykh prisadok k maslam)

Chemistry and Uses of Organophosphorous Compounds  
(*Khimiya i primeneniye fosfororganicheskikh soyedneniy*),  
Trudy of First Conference, 8-10 December 1955, Kazan,  
pp. Published by Kazan Affil. AS USSR, 1957  
124-147

M. M. Kusakov, head of the lab. of Physics and physico-chemistry of petroleum, and  
Docent of the Military Academy of Armoured Troops of the Soviet Army, M. D.  
Bezborod'ko also took part in the work.



VINOGRADOV, G. V., and MARIN, V. N.

"Mechanical properties of concentrated polymer solutions," a paper  
presented at the 9th Congress on the Chemistry and Physics of High Polymers,  
28 Jan-2 Feb 57, Moscow,

B-3,084,395

VIHOGRADOV, G. V., PANTOV, V. P., OSORINA, D. N., and OSOBERKIY, M. V.

"Flow and strain birefringence of solutions and gels of ethylcellulose,"  
a paper presented at the 9th Congress on the Chemistry and Physics of High Poly-  
mers, 28 Jan-2 Feb 57, Moscow, Research Inst. Physical Chem.

B-3,084,395

VINOGRADOV, G. V.

"On the Characteristics of the Physico-Mechanical and Optical Properties of Concentrated Solutions of Ethyl Cellulose and Benzyl Alcohol," D. N. Osokina in collaboration with V. P. Pavlov, G. V. Vinogradov, and M. V. Gzovskiy (reported on the usefulness of this plastic, optically active material for the modeling of tectonic processes,)

paper presented at the First All-Union Conference on Tectonophysics, Moscow, 29 January through 5 February 1957.

Inst. of Physics of the Earth, Acad. Sci. USSR

Sum 1563

VINOGRADOV, G. V.

Physicists L. M. Kachanov, Ye. I. Edel'shteyn, G. V. Vinogradov, G. N. Kuznetsov, M. P. Volarovich, and A. V. Stepanov and geologists F. I. Vol'fson, V. A. Aprodov, N. I. Borodayevskiy, and Yu. S. Shikhin -- "On the Problems of Modeling Tectonic Phenomena."

paper presented at the First All-Union Conference on Tectonophysics, Moscow, 29 Jan - 5 Feb 1957.

*Sum 1955*

VINOGRADOV, G.V.  
USSR/Chemical Technology - Chemical Products and Their I-8  
Application. Treatment of Natural Gases and Petroleum.  
Motor and Jet Fuels. Lubricants.

Abs Jour : Ref Zhur - Khimiya, No 1, 1958, 2600

Author : Vinogradov, G.V.

Inst : Academy of Sciences USSR

Title : Utilization and the Mechanism of the Action of Organophos-  
phorus Compounds as Wear-Reducing Additives for Oil.

Orig Pub : Sb.: Khimiya i primeneniye fosfororgan. soyedineniy. M.,  
AN SSSR, 1957, 124-147

Abstract : Investigation of the behavior during friction of steel  
against steel (in a 4-ball machine) of different organo-  
phosphorus compounds used as additives in lubricating  
oils. The functional delimitation of the action of phos-  
phorus and sulfur in organic compounds and their mixtures

Card 1/2

USSR/Chemical Technology - Chemical Products and Their I-8  
Application. Treatment of Natural Gases and Petroleum.  
Motor and Jet Fuels. Lubricants.

Abs Jour : Ref Zhur - Khimiya, No 1, 1958, 2600

was ascertained; and it was shown that phosphorus promotes an increase of the load at which binding of parts subjected to friction takes place, while the sulfur ensures good breaking-in characteristics of the oil. Functional delimitation of the action of chlorine and phosphorus in the organic compounds is analogous to the above-described. By means of the method of radioactive tracers it was ascertained that phosphorus is preferentially bound at the steel surface; formation of phosphide, in its turn, precludes formation of a sulfide film on the surface of the steel. As a result thereof, prior to the occurrence of binding the effect of the action of phosphorus prevails, whereas the action of the sulfur begins to manifest itself after the binding.

Card 2/2

AUTHOR: Gvozdev, M.M., Bezborod'ko, M.D. and Vinogradov, G.V.

TITLE: An investigation of properties of plastic lubricants (greases) using high speed cinephotography. (Issledovaniye svoystv plasticheskikh smazok metodom vysokoskorostnoy kinosyemki.)

PERIODICAL: "Khimiya i Tekhnologiya Topliya i Masel" (Chemistry and Technology of Fuels and Lubricants) 1957, No.4, pp.41-47 (USSR)

ABSTRACT: The behaviour of grease in a bearing under different working conditions was studied using high speed cinephotography. The description of the apparatus (Fig.1) and some of the photographs obtained (Figs.2-5) are given. It is concluded that the method is suitable for studying deformation processes of plastic dispersed systems. There are 5 figures and 4 Slavic references.

ASSOCIATION: Tank Academy imeni I.V. Stalin (Bronetankovaya Akademiya imeni I.V. Stalina).

AVAILABLE:

VINOGRADOV, G. V. (Prof.) and REBINDER, P. A. (Acad.)

"On Methods Characterizing the Viscous Elastic Qualities of Polymeric Solutions and the Application of New Rheological and Optical Polarization Methods."

Inter-vuz Scientific Conference (Mezhvuzovskiy nauchnyy Konferentsii)

Vestnik Vysshey Shkoly, 1957, # 9, pp. 73 - 76 (USSR)

1Abst: In January 1957, the Second All-Union Conference on Photosynthesis took place, organized by the Institute of Plant Physiology of the Academy of Sciences, USSR, and by the Faculties of Soil-Biology of the Moskva University. About 700 representatives of 130 scientific-research institutes, vuzes and ministries were present. The introductory report was made by Academician A. L. Kursanov who described the development of photosynthesis during the last ten years and invited the scientists to concentrate their work on the application of radioactive and stable isotopes. Nearly 100 reports were read: 13 on photochemistry, 9 on the investigation of chloroplast structure, 19 on the investigation of pigments, 9 on the photosynthesis of water plants, bacteria, etc.



"APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R001859910015-2

VINOGRADOV G. I.

APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R001859910015-2"

"APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R001859910015-2

YINOGIMDOV, G. V.

APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R001859910015-2"

VINOGRADOV, G.V.

USSR/Physical Chemistry - Colloid Chemistry, Dispersion Systems.

B-14

Abs Jour: Referat. Zhurnal Khimiya, No 3, 1958, 7349.

Author : N.V. Tyabin, G.V. Vinogradov.

Inst :

Title : Application of Approximation Method to Computation of Dispersion System Flows.

Orig Pub: Kolloidn. zh., 1957, 19, No 4, 505-510.

Abstract: The necessity to evaluate concrete values of maximum tangential stresses and velocity gradients at the approximation of flow curves of dispersion systems was shown on the example of flows of plastic lubricants in plain bearings and of bitumina along inclined planes. An expression was obtained for the rotation moment depending on the angular velocity of rotation at the flow of a plastic dispersion system in the ring-shaped clearance between coaxial cylinders, if the flow curve could be approximated with  $n$  equations of Shvedov-

Card : 1/2

-1-

USSR/Physical Chemistry - Colloid Chemistry, Dispersion Systems.

B-14

, Abs Jour: Referat. Zhurnal Khimiya, No 3, 1958, 7349.

Bingham. The flow of a layer of non-Newtonian liquid down an inclined plane is discussed. The laws of velocity distribution in layers and on the surface of a non-Newtonian liquid are determined, if its flow curves were approximated with two Newton's equations and two Shvedov-Bingham's equations.

Card : 2/2

-2-

32-7-34/49

**AUTHORS**

Vinogradov G.V., Semechkin L.Ya.

**TITLE**

The Taking of Oil Samples from Internal Combustion Cylinder Motors During Operation.

(Otbor prob masla iz tsilindrov dvigateley vnutrennego sgoraniya vo vremya raboty.-Russian)

**PERIODICAL**

Zavodskaya Laboratoriya, 1957, Vol 23, Nr 7, pp 867-869 (U.S.S.R.)

**ABSTRACT**

For this purpose a hole was bored into each of the pistons of a twin-cylinder motorcycle engine, into which holes a thread was cut. A device for the taking of oil samples was screwed into each of these openings so that they pointed upwards with the motor in a horizontal position.

Into the above device, which consisted of a capillary tube with a widened upper part, three to four drops of oil were dropped. The device was provided with water cooling. While the motor was in operation, part of the oil was driven into the aforementioned test tubes. In this way a sample of oil of 0,35-0,5 mm was taken. The temperature of the cylinder was measured by means of the thermal vapor and a thermometer. The motor worked with MC-14 oil and D-70 gasoline. The viscosity of the oil samples taken was examined in a microviscosimeter (Kennedy and Penske), and it was found that within the zone of the piston rings light fractions evaporated from the oil so that the viscosity of the oil was increased. There is 1 figure and 1 table.

AVAILABLE  
Card 1/1

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CIA-RDP86-00513R001859910015-2

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APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R001859910015-2"

VINOGRADOV, G. V.

20-5-22/60

AUTHOR:

PAVLOV, V. P., VINOGRADOV, G. V.

TITLE:

New Methods and Results in the Study of Plastic Dispersion Systems. (Novyye metody i rezultaty issledovaniya plastichnykh dispersnykh sistem, Russian)

PERIODICAL:

Doklady Akademii Nauk SSSR, 1957, Vol 114, Nr 5, pp 997-1000 (U.S.S.R.)

ABSTRACT:

Plastic dispersive systems result in little deformations because of the brittleness of their structure, so that it is difficult to study relaxation processes in them. As hitherto no data have been published concerning this problem, the elaboration of a method for the study of relaxation in bodies with weak relaxation was of interest. The basic scheme of a rotation-elastoviscosimeter fitted with a rigid dynamometer is shown in form of a drawing. This dynamometer can as a rule be considered to be completely rigid. The material to be investigated is filled into the space between the core and the outer cylinder of the elastoviscosimeter. The linear displacements of this outer cylinder are increased to from 20 to 40 times their extent by means of a system of levers, after which they are increased 3000-fold by a special device, and are fixed by means of a photoregistration chamber, by means of part of the device it is possible to investigate the shearing moduli of the material under investi-

Card 1/2

20-5-22/60

New Methods and Results in the Study  
of Plastic Dispersion Systems.

gation under statical and dynamical conditions. This is attained by a quick additional stress being brought to bear upon the sample. The central part of the device consists of a rotation system, which is connected with a synchronous electromotor by means of a multistep reductor. The rotation velocity of the core can change by  $10^{10}$  its amount. The authors describe the results obtained in determining the limit of shearing strength  $\tau_{sf}$  and of the stretching strain limit  $\tau_{f1}$  of plastic lubricants, viz. of a fatty solidol (which was defined in a previous work) and the lubricant GOI-54. In the case of a considerable reduction of the rotation velocity  $n$  of the core,  $\tau_{sf}$  depends less and less on  $n$ . Therefore  $\tau_{sf}$  can be looked upon as a constant which characterizes the rheological properties of the material. The ratio of  $\tau_{f1}$  at two temperatures is a constant quantity also for different types of lubricants. (With 3 illustrations)

ASSOCIATION: Institute for Mineral Oil of the Academy of Science of the USSR.  
(Institut nefiti Akademii nauk SSSR, Russian)

PRESENTED BY: Member of the Academy A.V. TONCHIIYEV

SUBMITTED: 9.1.1957

AVAILABLE: Library of Congress

Card 2/2



VINOGRADOV, G. V.; TRAPEZNIKOV, A. A.; VOYUTSKIY, S. S.; YAMPOL'SKIY, B. Ya.,

"Problems of rheology and structure formation of the oleophobic systems."

report presented at the Fourth All-Union Conference on Colloidal Chemistry,  
Tbilisi, Georgian SSR, 12-16 May 1958 (Kolloid zh., 20,5, p.677-9, '58, Tsuban, A.B)

VINOGRADOV, G. V.

(3)

[illegible][illegible]

4,500 copies printed.  
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i razvitiyu kul'turnykh i nauchnykh tsentriv i Akademicheskaya nauka SSSR.

atomoy energii, iia akademiya  
Editorial Board of St: V.I. Dikubin, Academician (Resp. Ed.), M.M.  
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L. A. Zaslavskaya (Secretary).

**ИЗДАТЕЛЬСТВО «ТЕХНИКА»**

**Ed. of Publishing House:** P.N. Belyanin, Moscow.

**PURPOSE:** This book is intended for specialists in the field of machine and instrument manufacture who use radioactive isotopes in the study of materials and processes.

**COVERAGE.** This collection of papers covers a very wide field of the utilization of tracer methods in industrial research and control techniques. The topic of this volume is the use of radioisotopes in the machine- and instrument-manufacturing industry. The individual papers discuss the applications of radioisotope techniques in the study of metals and alloys, problems of friction and lubrication, metal cutting, engine performance, and defects in materials. Several papers are devoted to the use of radioisotopes in the automation of industrial processes, recording and measuring devices, quality control, flowmeters, level gauges, sintering, and radiation counters, etc. These papers represent contributions of various Soviet institutes and laboratories on the use of radioisotopes. The All-Union Conference on the Use of Radioisotopes and Stable Isotopes and Nuclear Energy in the National Economy and Science, April 3-22, 1957, at Moscow, is mentioned.

References are given at the end of most of the papers.

Stetsenko, V.I. and Ye. A. Markovskiy (Institut mashinovedeniya i  
tehnicheskoye stroitel'stvo, Institute of Mechan-  
ical Engineering and Agricultural Mechanics, Academy of Sciences,  
U.S.S.R.)

Ukr. SSR). Study of the wear of high-alloyed steels. *Izv. Vuzovskogo Nauchnogo Tsentra* (1968), No. 1, p. 10.

Zakrevy, O.M., and Ya. M. Levin (Magnitopredskiy gosmetallurgicheskiy institut imeni Mosova - Magnitopredskiy Mining and Metallurgical Institute imeni Mosov). Study of Frictional and Wear Transfer of Metals 86

32  
Xingogradov, G. V., (Institut nafti Akademi nauk SSSR - Petroleum Institute, Academy of Sciences, USSR). Transfer of Metals and Substances Present on Metal Surfaces

Zaslavskiy, Yu.S.; S.I. Prum, I.M. Smeyereva, and G.I. Sheer (VNIIP pererabotki nefti i gaza i polucheniya ikhustvennoye energiya topliva - All-Union Scientific Research Institute for the Processing of Petroleum and Gas and the Production of Synthetic Fuels).

Liquid Fuel). Study of the Mechanism of the Action of Anticorrosive Oil Additives

Studenits, Ya. Ya. (Vsesoyuznyy nauchno-issledovatel'skiy ucheb'nyy institut - All-Union Mining Research Institute). Study of the Wear of Gears in Mining Machinery

VINOGRADOV, G.V.

Composition and Properties of the High Molecular (Cont.) 647  
 Weight Fraction of Petroleum; Collection of Papers; Moscow, Izd-vo AN SSSR, 1958, 370pp  
 were refined by sulfuric acid and solvent processes. The effect of the composition and the hydrocarbon structures on the quality of lubricating oils was determined for several types of oils. The role of quantity and structure of aromatics, naphthene-aromatics, hydrocarbons, resins and sulfur compounds was studied in motor oils as a factor modifying the character of naphthenic-paraffinic hydrocarbons. The type of the crude and the purpose of the lubricating oil determine the refining processes and their extent. There are 23 tables and 9 references of which 5 are Soviet and 4 English.

Winogradov, G.V., Krayn, S.E. Chemical Composition and Wear-Resistance Properties of Petroleum Oils 167

Various types of NPF oils (naphthene-paraffin fractions) were studied on friction-test machines in order to establish their wear-resistance properties in relation to their chemical composition. Their wear-resistance properties depend on the amount of aromatic fractions (AF) which are sulfur bearing, in relation to the NPF of variable viscosity and oxidation stability. The chemical composition of oils and individual fractions determines their characteristic behavior in relation to metals. These characteristics vary throughout the entire range of products from distillates through oils to NPF fractions. The article gives 14 figures and 1 table. There are no references.

Card 22

\* 2nd Collection of papers publ. by AU Conf. Jan 56, Moscow.

Composition and Properties of the High Molecular (Cont.) 647

Vinogradov, G.V., Semechkin, L.Ya., Pavlovskaya, N.T. Changes in the Composition of Motor Oils During Service 185

In order to study the effect of working conditions on lubricating oils, two oils were chosen: MS-14 (GOST 1013-49) obtained from Emba crudes, and motor oil SU (GOST 1707-51) obtained from Balakhany crudes. These oils were tested on several engines. Characteristics of initial and spent samples are given. The tests on piston engines showed that a period of 60 hours of service does not lead to a change of the chemical group-composition of oils. Longer periods (100 hours) are needed to cause noticeable changes. There are two tables and 4 references of which 3 are Soviet and 1 English.

Zelenskiy, V.D., Vinogradov, G.V. Effect of the Composition on Wear-Resistance Properties of Petroleum Products. 189

The authors studied the wear-resistance properties of lubricants and the effectiveness of additives as seizing inhibitors. The lubricants were tested on a friction-test machine. In order to establish which light fractions begin to show wear-resistance properties, several petroleum products were tested (e.g. kerosene fractions). The performance of lube oils was examined at high-surface friction and with various additives (sulfur, phosphorus, chlorine). Oils used were: transformer oils, SU, AK-15. A close study of the NPF (naphthene-paraffin fraction) was made, and their characteristics were determined as modifying the properties of the oils. The NPF from various crudes are different and their sensitivity to additives vary (especially towards organophosphoric wear-resistance additives). There are 2 tables, 2 figures, and 2 Soviet references.

VINOGRADOV, G. V., BEZBOROD'KO, M. D., PAVLOVSKAYA, N. T.

"Wear-Resistance Properties and Oxidizability of the Naphthene-Paraffin Fractions of Viscous and Low-Viscosity Petroleum Oils" p. 198

Composition and Properties of the High Molecular Weight Fraction of Petroleum; Collection of Papers, Moscow, Izd-vo AN SSSR, 1956. 370pp. (Inta nefti)  
2nd Collection of papers publ. by AU Conference, Jan 56, Moscow.

Since friction tests show the importance of oil composition, in particular of the NPF, a thorough study was made of this fraction. The NPF of transformer oil and of MS-20 were used in these tests. Results show that it is possible to achieve an exact differentiation of the various naphthene-paraffin fractions obtained from petroleum oils with different viscosity indexes. It was shown that the NPF of low-viscosity oils have a lower oxidation stability. There are 5 figures and 3 Soviet references.

VINOGRADOV G.

PHASE I BOOK EXPLOITATION

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Abkhazian SSR: BSKB. Bakhirevskiy filial

Khimiya sery-organicheskikh soedineniy, sodernzhashchikh v sebya i  
svoystva; materialy II nauchnoy sessii (Chemistry of Sulfur-  
Organic Compounds Contained in Petroleum Products: Papers of the 2nd  
Scientific Session) v. 1. Ufa, Izd. Bakhirevskogo filiala AN BSKB, 1976.  
888 p. 1,500 copies printed.

Ed.: Gudimov, E.I.; Editorial Board: Agasov, B.B., Makhlin, A.V.,  
Chalashov, B.B. (Resp. Ed.), Pechenkovskiy, V.B., and Shanda, L.L.;  
Tech. Ed.: Mikhlin, B. Sh.

PURPOSE: This book is intended for petroleum specialists of scientific research  
institutions, educational institutions, and petroleum refining plants.

COVERAGE: This collection is the first of a multivolume publication on the results  
of scientific research work carried out in the Soviet Union on the chemistry and  
technology of sulfur- and nitrogen-organic compounds during the period 1974-1975,  
and according to a coordinated research project outlined in 1974 by the sponsoring  
agency (Bashkir Branch, AN BSKB).

Card 1/13

Moscow, O. Ye., G. V. Vinogradov, and N.D. Beshkovskiy. (Institut nefti  
AN BSKB -- Petroleum Institute, AN BSKB) Investigation of the Influence of  
Sulfur-Organic Compounds on the Anti-Wear Properties of Motor Oils  
Benzyl disulfide, benzyl sulfide, di-n-butyl sulfide, elemental sul-  
fur, and other sulfur-organic compounds were employed as additives to  
determine whether anti-wear properties of lubricants were enhanced.  
At high sliding speeds with sub-critical loads, wear increased but for  
oil with an additive, the degree of wear was less than for pure oil.  
Graphs are plotted with respect to the influence of temperature and slid-  
ing speed on anti-wear properties and the critical load value for coating.

SOV/81-59-19-69221

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 19, p 393 (USSR)

AUTHORS: Vinogradov, G.V., Semechkin, L.Ya., Pavlovskaya, N.T.

TITLE: On the Changes in the Composition of Engine Oils in the Process of Their Application

PERIODICAL: V sb.: Sostav i svoystva vysokomolekul. chasti nefi. Moscow, AN SSSR, 1958, pp 185 - 188

ABSTRACT: The changes in the chemical group composition of the MS-14 aircraft oil from the best Emba petroleum and of the SU machine oil from Balakhany oil petroleum were investigated after working without addition in the engines V-2 (MS-14), "Hercules" (MS-14 and SU) and "Mercedes-Benz" (SU) for 50 - 60 hours. The oils were separated on industrial silicagel of type ASK at the ratio of the volumes of silicagel to oil of 5:1 and the dilution of the oil by isooctane in a ratio of 1:6. The naphthene-paraffine fraction and the monocyclic aromatic or naphthene-aromatic hydrocarbons were desorbed by isooctane, the remaining aromatic fraction

Card 1/2

SOV/81-59-19-69221

On the Changes in the Composition of Engine Oils in the Process of Their Application by benzene, and the resinous substances at first by an alcohol-benzene mixture (1:1) and later on by acetone. For the first time it has been established that during operation of engine oils in diesel motors for 50 - 60 hours, their chemical group composition remains practically unchanged.

B. Englin ✓

Card 2/2



SOV/81-59-8-28971

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 8, p 505 (USSR)

AUTHORS: Zelenskiy, V.D., Vinogradov, G.V.

TITLE: On the Effect of the Composition of Petroleum Products on Their Anti-Wear Properties

PERIODICAL: V sb.: Sostav i svoystva vysokomolekul. chasti nefi. Moscow, AS USSR, 1958, pp 189 - 195

ABSTRACT: The anti-wear properties (AP) of the fraction of Nebit-Dag petroleum, Tuymazy kerosene, naphthene-paraffin fractions (NPF) and n-paraffins separated from this kerosene, n-hexadecane and  $\alpha$ -methylnaphthalene were studied on a four-ball machine by the one-minute method (diameter of the balls is 14.29 mm, rate of revolution is 600 rpm). It has been established that at small loads the n-paraffins are distinguished by good AP and at large loads by bad AP. Naphthene hydrocarbons have unsatisfactory AP at any loads.  $\alpha$ -methylnaphthalene does not show any lubrication capacity at all. The lubricating action of light petroleum fractions first manifests itself in the tail fractions (275 - 300°C) of kerosene which is due, as a rule, to the presence of sulfurous compounds

Card 1/2

SOV/81-59-8-28971

On the Effect of the Composition of Petroleum Products on Their Anti-Wear Properties

in them. For investigating the response of petroleum products to the action of anti-seizing additions, to NPF of oils from various types of petroleum (of approximately equal viscosity) 3% of dibutylthiophosphite or dibutylphosphite was added. The increase in the critical load of seizing for NPF of oils of the following types: transformer, machine SU and AK-15 oil from Balakhany and Binagada petroleum was  $> 400$ ,  $\sim 260$ , 125 and 80%, respectively. Thereby it was proved that sensitivities of various oils to the same admixture are essentially different.

S.R.

Card 2/2

65-58-4-5/12

VINOGRADOV, G.V.

AUTHOR:

Vishnyakov, V. A., Vinogradov, G. V., Pavlov, I. I.

TITLE:

The Influence of Lubricating Material on the Wear of Ball Bearings (O vliyanii smazochnykh materialov na iznos podshipnikov kacheniya)

PERIODICAL:

Khimiya i Tekhnologiya Topliv i Masel, 1953, Nr 4, pp 26 - 32 (USSR)

ABSTRACT:

The changes due to abrasion in the presence of lubricating oils were investigated to obtain information on the nature of the influence of lubricants on the abrasion wear in ball bearings. The investigations were carried out on a friction apparatus (Fig. 1) with 3,600 revolutions/minute; 8.525 mm diameter balls were used. Ball No. 1 was made from steel 3Y-9, and subjected to a thermal treatment ensuring a hardness of  $R_{c} = 62 - 64$ . Viscous lubricating oil YC-2 and YC-2 (according to GOST 1033-51, and GOST 4336-50), the oil MT-15W (GOST 6360-52) and spindle oil AY (GOST 1642-50) were tested, as well as a naphthenic - paraffin fraction separated from oil K3-14. A narrow fraction of quartz dust separated from Lyubertsy quartz sand (micro hardness = approximately 1,000 kg/cm<sup>2</sup>) was used as abrasive. The size of the particles was as follows: not exceeding 5, not exceeding 10, from 10 - 20, from 20 - 30 and from 30 - 40 mk. The fractionated

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65-58-4-5/12

# The Influence of Lubricating Material on the Wear of Ball Bearings

abrasives were dried in a Gonnell apparatus by air elutriation (Ref.4); 2 - 20% abrasives were added to the lubricant. Fig.2 shows the dependence of the magnitude of the wear on the rate of movement and duration of the wear. The dependence of the wear on the concentration of the abrasive for particles of different size is given by Fig. 3. Curve No.4 (Fig.3) shows the relation between the wear and the dispersion of the abrasive. The physical condition of the lubricating medium influences the magnitude of wear considerably when using the viscous lubricant YC<sub>6</sub>-2. A three to five times higher degree of wear was observed for the viscous lubricant YC<sub>6</sub>-2 (the concentration of the abrasive between 2-20%) than in the case of oils (Fig.4). The degree of wear was lower than when spindle oil was used. This was due to viscosity, which according to Stoke's law governs the rate of sedimentation of particles of the abrasive. In the case of spindle oil, this rate is approximately ten times larger than for the oil MT-16II. The influence of the viscosity was also observed in investigations on the wear in relation to the temperature of the lubricant. During the latter experiments, viscous oils (YC<sub>6</sub>-2), the oil MT-16II, and the naphthenic-paraffin fraction of the K3-14

Card 2/3